

WE CLAIM.

1. An amperage control for an electrically operated valve, comprising:
 - a. a process control apparatus generating a plurality of electrical operating data signals, each signal corresponding to an operating parameter of the electrically operated valve;
 - b. a valve control apparatus transmitting voltage to the electrically operated valve to control the operation of the valve, the valve control apparatus receiving at least one operating data signal generated by the process control apparatus;
 - c. the electrically controlled valve having a current flow created therein upon receiving voltage from the valve control apparatus;
 - d. a current sensing apparatus sensing the flow of current in said electrically controlled valve, said current sensing apparatus creating an electrical signal responsive to the current flow in said electrically controlled valve,
 - e. said signal created by the current sensing apparatus applied to said valve control apparatus, said valve control apparatus controlling the operation of said electrically controlled valve responsive to said signal created by the current sensing apparatus.
2. The amperage control of claim 1, wherein a first impulse polarized current is established in the electrically controlled valve to initiate motion of the valve in a first direction, and a second reduced current is subsequently established in the valve to stabilize the position of the valve in a first predetermined position.
3. The amperage control of claim 2, wherein a third oppositely polarized impulse current is established in the electrically controlled valve to initiate motion of the valve in a

second direction, and a fourth reduced current is subsequently established in the valve to stabilize the position of the valve in a second predetermined position.

4. The amperage control of claim 2 wherein said first predetermined position of said valve is a closed position.

5. The amperage control of claim 3 wherein said second predetermined position of said valve is an open position.

6. The amperage control of claim 1, wherein the process control apparatus contains information that determines an open and closed sequence of the electrically controlled valve.

7. The amperage control of claim 1 wherein the valve control apparatus receives valve operating data from the process control apparatus and transforms said data into electrical signals applied to the electrically operated valve.

8. The amperage control of claim 1 wherein upon the detection of a predetermined current in the electrically controlled valve, the valve control apparatus reduces the voltage applied to the valve.

9. The amperage control of claim 1, wherein upon the detection of a predetermined current in the electrically controlled valve, the valve control apparatus adjusts the voltage applied to the electrically controlled valve responsive to said signal created by said current sensing apparatus.

10. The amperage control of claim 9 wherein the adjustment of the voltage applied to the electrically controlled valve maintains a constant current output in the valve.

11. The amperage control of claim 1 wherein the electrically controlled valve includes a coil, the current sensing apparatus comprises a resistor in series with the coil, and current passing through the resistor creates a voltage drop.

12. The amperage control of the claim 11 wherein the voltage drop provides a feedback signal that is transmitted to the valve control apparatus, the valve control apparatus adjusting the current delivered to the coil of the electrically controlled valve responsive to the feedback signal.

13. The method of controlling the operation of an electrically controlled valve comprising the steps of:

- a. creating a plurality of first electrical signals that correspond to at least one of the operation and control instructions for the electrically controlled valve;
- b. transforming said first electrical signals into a plurality of second electrical signals and transmitting said second electrical signals to the electrically controlled valve, creating an electrical current in the electrically controlled valve;
- c. sensing the current level in the electrically controlled valve and providing a third electrical signal responsive to said sensed current; and
- d. modifying the current level in the electrically controlled valve responsive to the third electrical signal.

14. The method of claim 13 wherein the electrically controlled valve includes a coil, and step (c) comprises sensing the current level in the coil.

15. The method of claim 13 wherein the first electrical signals establish a sequence that determines when the electrically controlled valve transitions between an open and closed position.

16. The method of claim 13 wherein the step of modifying the current level in the electrically controlled valve comprises reducing the voltage in the electrically controlled valve to produce a constant current output.

17. The method of claim 13 wherein the step of modifying the current level in the electrically controlled valve comprises the use of pulse width modulation to adjust the voltage applied to the electrically controlled valve.

18. The method of claim 13 wherein the step of sensing the current level comprises the steps of:

- a. generating a voltage drop to create a feedback signal;
- b. applying the feedback signal to change the value of the current in the electrically controlled valve.